CLAIMS

What is claimed is:

1. An isolated nucleic acid encoding an altered viral movement protein having the amino acid sequence shown in SEQ ID NOS.: 5 and 6.

2. The isolated nucleic acid of claim 1 that is essentially identical to the sequence shown in SEQ ID NO. 3, and the sequence contains a Thymine (T) or Uracil (U) residue at position 5212 and Guanine (G) residue at 5303 as shown in Figure 1A.

3. The isolated nucleic acid of claim 1 that is identical to the sequence shown in SEQ ID NO. 3.

4. An isolated nucleic acid encoding an altered 126/183 replicase complex having a nucleic acid alteration at nucleotide positions 1138, 1268, 2382, and 3632.

5. An isolated nucleic acid according to claim 4 wherein the altered 126/183 replicase complex enhances the stabilization of a transgene contained in a virus that expresses the altered replicase complex.

6. The isolated nucleic acid of claim 1, wherein the altered movement protein enhances the ability to facilitate stabilization of a transgene contained in a virus that expresses the altered movement protein.

7. A viral vector comprising a nucleic acid sequence encoding an altered viral movement protein having the amino acid sequence shown in SEQ ID NOS.: 5 and 6.

8. The viral vector of claim 7 exhibiting an enhanced ability compared to a control viral vector to stabilize a transgene contained in the vector.

9. The viral vector of claim 7,wherein the vector is a tobacco mosaic viral vector.

10. The viral vector of claim 8, wherein the transgene is a non-viral gene.

11. The viral vector of claim 10, wherein the non-viral transgene encodes a protein selected from the group consisting of a membrane protein, a cytosolic protein, a secreted protein, a nuclear protein, and a chaperon protein.

12. The viral vector of claim 7 that is designated BSG1057 deposited with American Type Culture Collection accession number 20398.

13. A cell transformed with the viral vector of claim 7.

14. The cell of claim 13 that is a plant cell.

15. A transgenic plant comprising the viral vector of claim 7.